

## AUTISM and MMR VACCINATION

Critical Analysis of - *Madsen KM 2002* – by Dr John Piesse, August 2016

**N Engl J Med. 2002 Nov 7;347(19):1477-82.** PMID: 12421889 **Free full text**

**A population-based study of measles, mumps, and rubella vaccination and autism.**

Madsen KM<sup>1</sup>, Hviid A, Vestergaard M, Schendel D, Wohlfahrt J, Thorsen P, Olsen J, Melbye M.

<sup>1</sup>Danish Epidemiology Science Center, Department of Epidemiology and Social Medicine, Aarhus, Denmark.  
kmm@dadlnet.dk

### **Abstract**

**BACKGROUND:** It has been suggested that vaccination against measles, mumps, and rubella (MMR) is a cause of autism.

**METHODS:** We conducted a retrospective cohort study of all children born in Denmark from January 1991 through December 1998. The cohort was selected on the basis of data from the Danish Civil Registration System, which assigns a unique identification number to every live-born infant and new resident in Denmark. MMR-vaccination status was obtained from the Danish National Board of Health. Information on the children's autism status was obtained from the Danish Psychiatric Central Register, which contains information on all diagnoses received by patients in psychiatric hospitals and outpatient clinics in Denmark. We obtained information on potential confounders from the Danish Medical Birth Registry, the National Hospital Registry, and Statistics Denmark.

**RESULTS:** Of the 537,303 children in the cohort (representing 2,129,864 person-years), 440,655 (82.0 percent) had received the MMR vaccine. We identified 316 children with a diagnosis of autistic disorder and 422 with a diagnosis of other autistic-spectrum disorders. After adjustment for potential confounders, the relative risk of autistic disorder in the group of vaccinated children, as compared with the unvaccinated group, was 0.92 (95 percent confidence interval, 0.68 to 1.24), and the relative risk of another autistic-spectrum disorder was 0.83 (95 percent confidence interval, 0.65 to 1.07). There was no association between the age at the time of vaccination, the time since vaccination, or the date of vaccination and the development of autistic disorder.

**CONCLUSIONS:** This study provides strong evidence against the hypothesis that MMR vaccination causes autism.

### **Critical analysis**

- This study compared '**case-years**' rather than **Autism/ASD cases**. Why? No explanation of 'case years' or reason for using 'case-years' as the comparator, was provided by the authors.
- Re-analysis of the data, comparing **cases** of autism given in each group, vaccinated v 'unvaccinated', show **8.88% more cases of autism in the MMR-vaccinated group**. This demonstrates that by comparative analysis of 'cases', the autism rate in MMR-vaccinated children was in fact significantly higher than in the 'unvaccinated group'. (See table 1, below)
- In this study, there is confusion in the categories 'vaccinated' and 'unvaccinated'. Children who had received the MMR vaccine comprised the vaccinated group, whereas vaccinated children who had not yet received the MMR vaccine were allocated to the group entitled 'unvaccinated'. MMR is not the first scheduled vaccine received by vaccinated children. The 'unvaccinated' group was made up of children vaccinated with other vaccines but not yet having received the MMR vaccine. If there were, in fact, any truly unvaccinated children in the 'unvaccinated' group, their number is not stated in this report.
- Thus, many children listed as 'unvaccinated', were in fact vaccinated by other non-MMR vaccines. Some cases of autism may have developed in these children from other causes, including non-MMR vaccines. It is highly likely that such vaccinated children allocated to the 'unvaccinated' group, may have included some autism/ASD cases, effectively loading the 'unvaccinated' group with some autism cases that could have been caused by other, non-MMR vaccinations. This appears to have been another methodological ploy to distort the results to obtain the conclusions the researchers required.
- Hence this study did not compare the rates of autism and other ASD cases in vaccinated versus truly unvaccinated children as stated in the study abstract.
- This study did not differentiate early-onset autism in children, both vaccinated and truly unvaccinated, in young babies prior to first the immunisation dose, from regressive autism, the type associated with MMR and other vaccines.
- Data regarding when the first autistic symptoms were noted was omitted from the analysis. Hence it is not possible in this study to deduce to what extent autism may have become apparent after any vaccination, MMR or non-MMR vaccines

**Table 1**

**Madsen KM 2002: Comparison of the number of cases of autism in MMR-vaccinated versus vaccinated children not given the MMR vaccine - MMR-‘unvaccinated’ children.**

**RE-CALCULATION of the DATA**

	<b>VACCINATED CHILDREN (N=440,655)</b>	<b>‘UNVACCINATED’ CHILDREN (N=96,648)</b>		
	<b><u>Number</u></b>	<b><u>Number</u></b>		<b><u>Autism cases ratio-%</u></b>
				<b><u>VAX / UNVAX</u></b>
<b>AUTISM CASES</b>	<b>263 = 0.05968 %</b>	<b>53 = 0.054838%</b>	<b>RR = 1.088</b>	<b>+ 8.8%</b>
<b>Other ASD CASES</b>	<b>345 = 0.07829 %</b>	<b>77 = 0.07967%</b>	<b>RR = 0.98</b>	<b>- 2.0%</b>
<b>TOTAL</b>	<b>608 = 0.13798%</b>	<b>130 = 0.13451%</b>	<b>RR = 1.0258</b>	<b>+ 2.6%</b>

**Conclusion: the autism rate in MMR-vaccinated children was 8.8% higher than in non-MMR vaccinated children.**

**CRITICAL ANALYSIS: CONCLUSION**

For all the above reasons, this study is unacceptable as a credible piece of research into the question of whether, and to what extent, vaccinations may cause autism. It does, however, indicate that the MMR vaccine of that period did cause an increment of autism cases over and above those that could be attributed to other, non-MMR vaccines. This conclusion is based on recalculation of the incidence of cases of autism and other autism-spectrum disorders as actual number of cases, rather than ‘case-years’ as used by the study authors, and contradicts the conclusion stated by Madsen and co-authors. The so-called ‘unvaccinated’ comparison group comprised vaccinated children who had not received the MMR vaccine. So this study did not compare vaccinated to unvaccinated children as stated in the abstract.